

# **A QUEST FOR THE RIGHT WORD ENHANCING REFLEXIVITY AND TECHNOLOGY IN TERMINOLOGY TRAINING**

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## **Abstract**

When it comes to translators training, the acquisition of indexing and terminological competences (both at retrieval and management stage) has a major role in the performance of future translators. A good terminological database, as a result of an accurate research, along with computer assisted translation tools (CAT tools) can improve translation's speed and quality and also reduce revision costs, bringing in benefits for all the players in the translation industry: language service providers and clients.

That process (analysis, selection, retrieval and storage of terminology) takes place mostly in the pre-translation stage, but underlies the whole translation work and can be a determining factor to the quality of the final product and to its homogeneity, especially when carried out in a collaborative environment.

The development of terminological databases is an essential step in the training of translators and the efficient search for the right word a necessary skill in today's globalised translation market. Moreover being the quest for the right word almost entirely run over the Internet, data diversity can greatly increase the noise. This search poses several questions, mainly (1) how and where to retrieve information and (2) how to manage it efficiently, especially to students who are neither experts in terminology nor in translation.

To ease some of these problems, students were assigned a project in terminology (a database) and, in order to accomplish it, both a Webquest and an ePortfolio were proposed as guidance tools. Along the process, students were expected to build up their thematic and communicative competence and, in parallel, widen their skills in computer-assisted translation tools as well as standard office-automation software.

This paper aims at discussing how these two tools helped students guide their research, structure the problem solving activities, develop critical thinking and terminological competencies.

**Keywords:** Terminology training, terminology management, specialized translation, Webquest, ePortfolio, project-based learning.

## **1. INTRODUCTION**

The process of translation involves the use of carefully selected resources to ensure quality translations, done in accordance with client's needs and requests and within the established deadline.

To achieve these aims successfully, the use of electronic tools to assist in the process can be of a great help. In fact, computer-assisted, machine or localization tools are a regular part of the translation process, due to the possibilities they offer in terms of management, storage and data reuse, the benefits they bring in terms of productivity, cost and time saving and quality of the translation output for all the players in the translation industry: translators, language service providers and their clients.

When it comes to translators' training, the acquisition of indexing and terminological competences (both at retrieval and management stage) plays a major role in the performance of future translators. A good terminological database, as a result of an accurate research and a full domain comprehension, along with computer-assisted translation tools (CAT tools) can improve translation's speed and quality and also reduce revision costs, bringing in benefits for all the players in the translation industry: language service providers and clients.

That process (analysis, selection, retrieval and storage of terminology) takes place mostly in the pre-translation stage, but underlies the whole translation work and can be a determining factor to the quality of the final product and to its homogeneity, especially when carried out in a collaborative environment. The development of terminological databases is thus an essential step in the training of translators and a necessary skill in today's globalized translation market.

Understood here as a pre-translation task, it serves as an approach to the subjects of terminology mining and management in specialized translation and as a support tool to the understanding of special fields and their key concepts, as well as their (culture-specific) linguistic and pragmatic conventions.

For the development of this process, we assumed that terminology is, as Cabré [7] states, *the set of special words belonging to a science, an art, an author, or a social entity. The language discipline dedicated to the scientific study of the concepts and terms used in specialized languages*. Two basic principles are therefore transmitted to students:

1. that a terminology is not a product, but a process in constant updating, the reflection of an open system able to accommodate new data and knowledge, constructed either individually or through a social network.
2. that terminology management is the basis of all technical communication, as it improves the clarity of information and reduces its ambiguity, thereby expediting all types of information exchange.

The construction of a terminology in a cooperative and collaborative working environment using a terminology data bank, in the context of a translation class, arose thus as a multifaceted task, with several purposes and applications, ranging from the development of the basic skills required of a professional translator, able of carrying out demanding translation and translation-related tasks and of acting responsibly as a member of its profession, to the electronic handling and management of document and translation systems and the use of the Internet as an information source.

## **2. TRANSLATORS' TRAINING: TEACHING TRANSLATION BASICS IN ONE SEMESTER**

### **2.1 Approach to Translation in a multifaceted Degree**

In ISCAP – School of Accounting and Administration of Oporto, at undergraduate level, translation courses are taught to students enrolled in the Degree of Administrative Assistance and Translation (1<sup>st</sup>, 2<sup>nd</sup> and 3<sup>rd</sup> Years) and Business Communication (one single course in the final year). Hence, they are trained in translation (theory and practice, literary and specialized translation and interpretation so that they can become full translators, but a great number of graduates will only translate as a complementary activity to their job in the management assistance or communication field.

Specifically, in the course we teach - Electronic Tools for Translation (ETfT) - the main focus is on knowing and using the right tools for the right job when dealing with specialized translation. This does not mean that this course is plainly technological, since underneath the design of the syllabus is the "minimalist definition" of competence from Pym [18], to whom:

*As an interpersonal activity working on texts (of whatever length or fragmentary status), the training of translators involves the creation of the following two-fold functional competence (cf. Pym 1991):*

- *The ability to generate a series of more than one viable target text (TT1, TT2 ... TTn) for a pertinent source text (ST);*
- *The ability to select only one viable TT from this series, quickly and with justified confidence.*

And this training follows a problem-solving approach, more than a transfer process, and *basically sees translating as a process of producing and selecting between hypotheses, and this is in itself a mode of constant theorization.* [18]

Therefore, our approach to translation training is one of learning by doing, under the framework of the Bologna Declaration, which aims at enhancing reflexivity and technology through problem-solving tasks, where a viable meaning and the quest for the right word is the output of a long teaching-learning process of generation and selection of hypotheses.

This way, if students learn their lesson right, even if they don't become full-translators, they can use their acquired knowledge in diverse translation and communication activities, many of them part of the multitasked profile of the modern translator - terminology mining and management, project management, translation memory management... This approach also allows them to acquire competences that increase their employability in a larger range of translation skills.

## 2.2 Terminology and the quest for the right word

"The difference between the right word and the almost right word is the difference between lightning and a lightning bug"

Mark Twain

As previously stated, terminology is *a process in constant updating, the reflection of an open system able to accommodate new data and knowledge.*

It is obvious that "translators don't translate words, they translate what people do with words" [19] and as Newmark [17] has claimed, apparently terminology accounts only for up to 10% of the total content of technical texts. Nevertheless, the whole terminology in a specialized text is not a list of words; it is, above all, specialized information, part of a conceptual representation of a specialized field of knowledge, i.e., it is much more than words.

Therefore, when defining the skills students should acquire in the course of ETfT, terminology mining and management became necessarily part of the syllabus, since they offer students a great deal of problems to solve, demand hypotheses, generation and validation of viable solutions, according to a specific context, domain and target-public.

Thus, throughout the year, students are assigned projects in which they are to explore open-ended professional situations and train their terminological and translation skills in all stages of the translation process. During the Winter Semester, and in order to develop their competence in pre-translation skills, students are introduced to the concept of Languages for Specific Purposes (LSP) and to the basics of terminology, namely:

- The principles and conceptual bases that govern the study of terms;
- The guidelines used in terminographic work;
- The set of terms of a particular special subject. [7]

When introduced to the concept of specialized translation and to terminology and terminography, students are not yet translating, in fact, but they are already exposed to a great deal of factors to be taken into consideration when translating. In fact, still according to Cabré [7], when we refer to LSPs we are dealing with subcodes (that partially overlap with the subcodes of the general language), each of which can be 'specifically' characterized by certain particulars such as:

- a subject field,
- type of interlocutors,

- situation,
- speakers' intentions,
- the context in which a communicative exchange occurs,
- the type of exchange.

Hence, most of the linguist and non-linguistic factors on which a viable translation depends are already being addressed at the pre-translation stage of terminology management, where understanding and organizing concepts, finding definitions and equivalents and good source and resource materials can be a hard but fundamental translation training.

## 2.3 Where and how to find the right information without getting lost?

The quest for the right word, followed out by students with no previous translation or terminology training can be, in fact, one of the hardest tasks in their way to translate a specialized document. On the other hand, being classes taught in computer labs with internet, most of that quest is carried out on-line, procedure which we (lecturers) found out to be an extra problem, since students are also not skilled in online information retrieval.

In order to help students acquire this skill in a quick and efficient way, without (i) them getting lost in the World Wide Web and (ii) we, lecturers, loose too much classes guiding them through search techniques, strategies and training, we decided to assign them a task – a WebQuest - where both (i) information search and retrieval and (ii) terminology management were to be practiced.

To fulfill this task and in order to reduce time consuming browsing and weak information retrieval, some classes on on-line retrieval are scheduled, along with exercises and reference to online search manuals and courses. However, after some free search attempts in previous years, we decided to follow a more guided training, with written tips and clear paths so that results would match the course objectives and students would feel more motivated developing a project in terminology (a database) which tends to be one of the least preferred items in the syllabus.

This project in terminology is not only meant to be a web search exercise, as it focus also on assessing students on terminology management and on their ability to use CAT tools for this purpose. Therefore, following the first stage of terminology management (term retrieval, assessment and indexing), they are asked to create a Multiterm<sup>1</sup> database as an output of their WebQuest.

The WebQuest should, thus, act as a tool to structure problem solving activities, develop critical thinking, guide students' research and as a strategy to develop students' skills in obtaining rapidly and efficiently, in both source language and target language, the background knowledge (facts, terminology, language conventions) necessary to produce a termbase of professional standard.

## 3. Case-study

To help students' training in terminology management, a decision was taken to assign them a Webquest and an e-Portfolio. Both activities were designed to support the structuring of problem solving activities and the development of critical thinking, and also to act as a tool to guide students' search in the quest for the right words to populate the Termbase.

### 3.1 Process

This process, which relied heavily on the Internet as its main resource, was carried out by a group/team which developed into a virtual community and used a cooperative approach to accomplish the objectives defined for the project.

During this process of project-based learning, students were expected to use all previously acquired competencies, improve their knowledge research and organization skills and master the search in the Web in order to retrieve information to create the Multiterm database. To support the task and the

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<sup>1</sup> By using SDL/Trados software.

process, students were introduced to the fundamental principles of terminology work, term banks, especially Multiterm, and other terminology resources, computer-based terminology tools, terminology management, terminography and basic lexicography.

To develop the terminological database they should recognize and explore the conceptual domain(s) of a specific report in English, distinguish between general and specific/technical vocabulary, extract all the candidate terms, find reliable sources to extract and complete information (definition, examples, etc.) about the terms, find equivalent terms in Portuguese and other Target Language (French or German or Spanish) and complete the database..

### **3.2 Objectives**

Being this tool already well known amongst most educators as an “inquiry-oriented” and a research-based activity it was the first time we decided to use it as a process-oriented experience, as part of the project-based learning approach. Its main purpose was to orient students during the research project and to establish guidelines for the retrieval and correct integration of all the data.

### **3.3 Brief description of the course and of the students**

As we mentioned before, this project was carried out in the winter semester by students of “Electronic Tools for Translation I”. This course, amongst others, includes the following topics:

- 1. Some notions on translation;*
- 2. Translation and the Computer*
- 3. Traditional, digital and electronic translation tools: terminologies*
4. Internet: a tool for assisted translation
  - 4.1. The World Wide Web: how to browse the chaos
  - 4.2. Search tools (search engines, libraries, data bases, and others)
5. Terminology Management
- 6. Introduction to the using and construction of corpora*

Since the beginning, this course was conceived and taught as translation training, aiming at providing the students with a learning environment similar to a professional one. Therefore, they are given tasks/problems in which they are to explore open-ended professional situations and mainly, train their translation skills, in all stages of the translation process,

- 1. pre-translation**
2. translation
3. post-translation

During the first part of the course, in the Winter Semester, students should get acquainted with the profile of a translator, as far as competences, skills, activities, attitude, strategies and, of course, tools are concerned. Therefore, we focus on web search optimizing strategies, on terminology mining and management and, being a translation course, a great deal on problem-solving tasks.

This way, they learn some web search techniques and shortcuts and are introduced to terminology (definition, extraction and management), which assumes a great role in translation, especially in the pre-translation stage. During the semester, they have the opportunity to understand the role of terminology for languages of specific purposes and specialized translation, through the development of translation projects, reflecting real-world practices, in which they are to solve problems, generate higher-level thinking and cooperative work.

### **3.3 Methodology**

### 3.3.1 WebQuest

Once a Webquest is “built around an engaging and doable task that elicits higher order thinking [...], about doing something with information” [21] in order to create knowledge in an autonomous and inquiry-oriented way, and normally being “an inquiry-oriented activity in which some or all of the information that learners interact with comes from resources on the Internet” [9] it seemed to us a suitable tool to solve terminology problems in a project-based and cooperative learning environment.

Therefore, the students should use proposed online resources, in order to find definitions and equivalents in two target languages for a collection of terms already extracted from an English text.

As proposed by Bernie Dodge, the task comprised 5 stages:

1. Introduction: Here we explained the students the general purpose of the work
2. Tasks: here they were informed they should work in teams and carry out a research project with the following outcomes:
  - a. Definitions, in English and Portuguese, of the formerly extracted terms;
  - b. Definition of the domain(s);
  - c. Indication of the definition source, in both languages;
  - d. Equivalent terms in Portuguese, French and German;
  - e. Indication of the terms source in all the languages;
  - f. Indication of the used tools and brief assessment of the latter.
3. Resources:
  - a. Glossaries, dictionaries and other translation tools
  - b. on definitions
  - c. on citation of electronic documents
4. Process: students should fill in three Excel sheets with (i) terminological information; (ii) bibliographical information; (iii) tool assessment and submit the final project within a fixed deadline.
5. Assessment: in order to make the assessment criteria as clear as possible, the Webquest included the assessment table with the items to evaluate.

Moreover, the development of this project is simultaneously supported by the creation of an e-Portfolio<sup>2</sup>, where students are asked to post and record their reflections on the different stages of the work and reflect on the problems encountered.

By proposing these tools we aimed at helping students in:

- knowing and understanding the key concepts of terminology;
- structuring the problem solving activities;
- approaching the different aspects of terminology retrieval (by following guided paths and reliable sources) and management;
- developing critical thinking.

Due to these objectives and in order to meet the needs of the project, we decided to follow a Project-based learning approach. This approach, which is a comprehensive instructional way to engage trainees in a sustained and cooperative learning experience, fostering the idea of community, uses small projects/activities as a starting point. These projects have two essential components:

1. A driving question/problem or case-study that serves to organize and determine various activities, which taken as a whole amount to a meaningful project.
2. Culminating product(s) or multiple representations as a series of results or consequential tasks that meaningfully addresses the driving question [8].

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<sup>2</sup> In the ELGG platform (<http://www.iscap.ipp.pt/elgg/>)

In our experiment, the driving question – “how to create an accurate terminological database of a specific domain” – was meant to lead to:

1. opportunities for trainees to make active investigations that enable them to learn concepts, apply information, and represent their knowledge in a variety of ways;
2. cooperation among trainees, teachers and others elements of the community so that knowledge could be shared and distributed amongst the members of the "learning community";
3. the use of cognitive tools in learning environments that support trainees in the representation of their ideas. [5]Students were thus divided into groups of five and assigned part of a translation of the Report *A World of Good - Business, Business Schools and Peace*, a real-world case study. These students were 2<sup>nd</sup> year students who attended *Electronic Tools for Translation I* in the undergraduate *Degree of Administrative Assistance and Translation*.

The aim of this task was for students to:

1. be introduced to *the language and the conceptual system of a special field*;
2. practice and develop the previously acquired knowledge, concepts and skills, including the ability to use research tools;
3. become familiar with research;
4. create a terminological database using Multiterm;
5. translate the report;
6. offer their translation to the *AACSB International – The Association to Advance Collegiate Schools of Business*.

Students were expected to manage the entire process and develop the task outside the classroom. For that purpose, students were advised to choose a project manager, establish deadlines and to consult with the teacher only in more problematic cases.

### 3.3.2 E-portfolio

As said before, this experiment was not only meant to enhance accuracy in terminology management, but also to help students develop critical thinking and technological competence. This meant that, along with the quest for the right word students were also asked to register all the steps, difficulties, questions, doubts they found along the accomplishment of the terminological database in an e-portfolio.

The ePortfolio comes forward as one of the initiatives which has gained acceptance and popularity over the years in different communities, especially now when more and more learning has a students centred approach and learners' reflexivity and autonomy are most valued in any field. Therefore, it is not surprising that the European Institute for e-learning (EIFEL) supports ePortfolio initiatives and desires to achieve the number of one ePortfolio for each European citizen by 2010.

As Siemens states, the use of an ePortfolio is important due to “the dynamics of functioning in a knowledge economy, the changing nature of learning, and the changing needs of the learner”. [20]

In this framework, we decided to introduce the use of ePortfolios at School of Accounting and Administration of Oporto (ISCAP) as a structural activity in the early training of translators, namely in order to help them think on the tasks involved in translation, particularly pre-translation, and specially in terminology management.

This assignment was implemented in ISCAP as a pilot project in order to assess the results and define models and approaches to support and disseminate the use of this tool by other students and courses. These first steps considered the words of Siemens, who states that “to give an institutional approach to ePortfolios can be a difficult task as, to be effective, the concept needs to be embedded into the process of instruction and assessment”.

In order to implement this project, we compared and analysed several platforms and decided to use the platform ELGG, as it is, according to EIFEL, one of the platforms that matches all the criteria needed for this kind of projects and also on account of being an open source social platform, “based around choice, flexibility and openness: a system that firmly places individuals at the centre of their

activities". [11]

Moreover, this tool represents the kind of the technology required to support the adoption of ePortfolios, as it allows each student to manage a personal and academic profile, a weblog, discussion communities and files and videos, among other possibilities. Finally, it seems to be a very attractive platform, which enhances the social component of the ePortfolio allowing students to interact within their ELGG community.

In order to ease students' adaptation to the platform and prepare future work a guide was developed for both students and teachers. Three short training sessions were also carried out to present and explain the use of ELGG, and bring some light about the concepts inherent to ePortfolios working and sharing virtual environment.

This task intended to:

- develop students' self learning skills;
- help them managing the projects deadlines;
- improve knowledge on the construction and management of terminological databases;
- deepen their knowledge of the concepts related to terminology;
- analyze how reflexivity and technology can enhance learning.

The using of the ePortfolio was not only a fundamental means of communicating between a translator (student) and client (lecturer), but it also seemed to be a suitable tool to store and organize information and resources in the designed project-based and cooperative learning environment.

Thus, students were asked to develop an ePortfolio in ELGG platform, with the following compulsory items:

- 1.critical description of all the pre-translation tasks developed in the collection, translation and validation of terms for the Terminological Database;
- 2.digital library of the translation resources used;
- 3.other reflections on the translation process;
- 4.creation of a translation community in ELGG

During this process of project-based learning, students were expected to use all previously acquired competencies, improve their knowledge research and master the use of the platform ELGG and develop organization and archive skills, through oriented reflective work.

The development of a pre-translation process in a cooperative and collaborative working environment, where the ePortfolio plays a significant part, in the context of a translation class, arose as a multifaceted task, with several purposes and applications, ranging from the development of the basic skills required of a professional translator to the electronic handling and management of document and translation systems and the use of the Internet as an information, management and storage source.

## **Conclusion**

The development of these projects, which engages students in group work in a cooperative and virtual environment (ELGG), helped them to combine the acquired translation-related knowledge and skills and refine them further through guided translation assignments. It also enabled trainee translators to start developing into translation professionals, namely in the terminology management, who are capable of producing functionally adequate and commercially acceptable target texts and databases as part of a network.

We were able to realise through this experience that the introduction of a new assessment tool, along with the new pedagogical approach that the ePortfolio brought in, has to be supported by objectives which are clear to students, teachers and the school. Indeed, the ePortfolio tasks were designed to help students in the definition of a clear set of objectives and phases for the completion of each task, by helping them in the management of the projects deadlines, improving their knowledge as far as the translation process is concerned and, finally, deepening their awareness about the concepts related to the use of ePortfolios.

The use of this tool, if well oriented, can really motivate students to engage themselves in a more



active learning and help them in the acquisition of new knowledge and skills. We also realised that the part-time students (older) were much more committed to the proposed tasks, than the full-time students (younger), who still need to develop further reflexivity processes in learning.

As far as the WebQuest is concerned, by carrying it out, students trained and completed one of the most important pre-translation tasks: research, collect and manage terminology and diverse translation resources in a specialized domain. They were also given a working knowledge of and sufficient practical skills in computerized document handling, the use of information networks, translation tools and technologies. Finally, they gained competencies in the retrieval, gathering and management of all the information needed so that they could create a Multiterm terminological database.

## REFERENCES

- [1] Albuquerque, Alexandra; Castro Fernandes, Joana (2003) *O que é, para que serve e como se elabora um glossário?*. In Actas do II Congresso Internacional da AELFE.
- [2] Barret, H. & Carney, J. (2005). Conflicting Paradigms and Competing Purposes in Electronic Portfolio Development. Educational Assessment. Educational Assessment
- [3] Benz, P. (2000). *What is a Webquest?*. [edição electrónica]. URL: <http://www.ardecol.ac-grenoble.fr/english/tice/oldtice/entice6a.htm>
- [4] Benz, P. (2001). *Webquests, a Constructivist Approach*. [edição electrónica]. URL: <http://www.ardecol.ac-grenoble.fr/english/tice/enWebquests.htm>
- [5] Blumenfeld P, Soloway E, Marx R, Krajcik J, Guzdial M, Palincsar A. Motivating project-based learning: Sustaining the doing, supporting the learning. Educational Psychologist, 26 (3 & 4), 369-398,.
- [6] Byrne, Jody (2006), *Technical Translation – Usability Strategies for Translating Technical Documentation*, The Netherlands, Springer.
- [7] Cabré, M. Teresa (1999). *Terminology – Theory, Methods and Applications*. Amsterdam /Philadelphia: John Benjamins.
- [8] Campione, J. & Brown, A.(1990) Guided learning and transfer: Implications for approaches to assessment. in N. Fredericksen, R. Glasser, A. Lesgold & M. G. Shafro (Orgs.), Diagnostic monitoring of skill and knowledge acquisition.,Lawrence Erlbaum.
- [9] Dodge, B. (1998). *Building blocks of a Webquest*. [edição electrónica]. URL: <http://projects.edtech.sandi.net/staffdev/buildingblocks/p-index.htm>
- [10] Dodge, B. (2002). *Webquest taskonomy: A taxonomy of tasks*. [edição electrónica]. URL: <http://Webquest.sdsu.edu/taskonomy.html>
- [11] EIFEL (2006). Why do we need an ePortfolio?.[online].URL: <http://www.eife-l.org/publications/ePortfolio/Environments!> Education World.
- [12] Flanigan, E. & Amirian, S. (2006). ePortfolios: Pathway from classroom to career. Handbook of Research on ePortfolios, A. Jafari and C. Kaufman (eds). Idea Group Reference.
- [13] Hopkins-Moore, B. & S. Fowler (2002). *Webquests: changing the way we teach online*. CHI2002 conference in Minneapolis, MN. [edição electrónica]. URL: <http://www.hopkins-moore.com/Webquests.htm>
- [14] José Ramón Biau Gil & Anthony Pym (1991). *Technology and translation (a pedagogical overview)*. [15] March, T. (1998). *Webquests for learning. Why Webquest? An introduction*. [edição electrónica]. URL: <http://www.ozline.com/Webquests/intro.htm>
- [16] Mason, J. (2006). Qualitative Research. London: Sage Publications.
- [17] Newmark, Peter (1988), A Textbook for Translation, Hemel Hempstead, UK: Prentice Hall.
- [18] Pym, Anthony (2003), Redefining translation competence in an electronic age. In defence of a minimalist approach. In *Meta: journal des traducteurs / Meta: Translators' Journal*, vol. 48, nº 4, p. 481-497.

- [19] Robinson, D. (2003), *Becoming a Translator*. 2nd Edition. London & New York, Routledge.
- [20] Siemens, G. (2004). ePortfolio. [online].URL: <http://www.elearnspace.org/Articles/ePorfolios.htm>,
- [21] Starr, L. (2000). *Meet Bernie Dodge - the Frank Lloyd Wright of Learning*
- [22] Steffani, L., Mason, R., Pegler, C. (2007). The Educational Potential of e-portfolios – supporting personal development and reflective learning, London: Routledge
- [23] Suonnuti, Heidi (1997) *Guide to Terminology*, Helsinki, Tekniikan Sanastokeskus.
- [24] Virolainen, H. (2006). Learning Assessment, Digital portfolio as a strategy for teachers professional development, Associação de Professores de Sintra (eds.). Sintra: Edição Associação de Professores de Sintra.
- [25] Yin, R. (2003). Case Study Research – Design and Methods. Applied Social Research Methods Series. London: Sage Publications
- [26] Yoder, M. B. (2003). *Inquiry based learning using the Internet: Research, resources, Webquests*. 19th Annual Conference on Distance Teaching and Learning. Madison, Wisconsin, 13-15 of August 2003. [edição electrónica]. URL: [http://www.uwex.edu/disted/conference/Resource\\_library/proceedings/03\\_57.pdf](http://www.uwex.edu/disted/conference/Resource_library/proceedings/03_57.pdf)